

WE CLAIM:

1. A hot melt adhesive composition comprising:
 - (a) greater than about 40 wt% of an ethylene comonomer copolymer composition, the comonomer comprising an α -olefin or mixtures thereof, the polymer composition having a melt index greater than 800 gm-10 min⁻¹; and
 - (b) an effective amount of a hydrogenated hydrocarbon tackifying resin with a softening point greater than 120°C;wherein the weight ratio of the polymer composition to the resin is greater than about 1:1.
2. The composition of claim 1 wherein the tackifying resin has a softening point of less than about 125°C.
3. The composition of claim 1 wherein the polymer composition comprises an ethylene/ C₃ to C₁₈ α -olefin polymer.
4. The composition of claim 1 wherein ethylene acrylic polymer comprises an ethylene/octene copolymer.
5. A hot melt adhesive composition comprising:
 - (a) greater than about 40 wt% of an ethylene/ C₃ to C₁₈ α -olefin polymer composition having a melt index greater than 800 gm-10 min⁻¹; and
 - (b) an effective amount of a hydrogenated hydrocarbon tackifying resin with a softening point greater than 125°C;wherein the weight ratio of the polymer composition to the resin is greater than about 1:1.
6. The composition of claim 5 wherein the adhesive additionally comprises about 0.1 to 10 wt.-% of a block polymer and has a softening point of less than about 95°C.

7. The composition of claim 5 wherein the polymer composition has a melt index greater than 950 gm-10 min⁻¹ and the adhesive has a softening point of less than about 85°C.

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8. The composition of claim 5 wherein the weight ratio is greater than 1.5:1.

9. The composition of claim 5 wherein the weight ratio is greater than 1.8:1.

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10. The composition of claim 5 wherein the tackifying resin has a softening point of less than about 125°C.

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11. The adhesive of claim 5 wherein the ethylene polymer composition comprises a polymer comprising about 8 to 14 wt.-% α -olefin and the resin comprises about 20 to 40 wt% of the adhesive.

12. The adhesive of claim 5 wherein polymer comprises is present in the adhesive at a weight ratio polymer to resin of at least 2:1.

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13. The adhesive of claim 5 wherein the ethylene/ α -olefin polymer is present in an amount of at least about 60 wt.-%.

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14. The adhesive of claim 13 wherein the ethylene/ α -olefin polymer has a melt index greater than 950 gm-10 min⁻¹.

15. The adhesive of claim 13 wherein the resin is present in the adhesive in an amount of 20 to 40 wt%.

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16. The adhesive of claim 5 wherein the ethylene/ α -olefin polymer comprises a blend of a first ethylene/ α -olefin polymer and a second ethylene/ α -olefin polymer wherein the first has a MI different than the second.

5 17. The adhesive of claim 5 wherein the adhesive consists essentially of 42 to 85 wt% of an ethylene/octene polymer having a melt index of about 850 to 1250 gm-10 min⁻¹ and about 30 to 50 wt% of a hydrogenated hydrocarbon tackifying resin with a softening point greater than about 125°C; wherein the weight ratio of the polymer to the resin is greater than about 1:1.

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18. The adhesive of claim 5 wherein the adhesive has a viscosity of 2000 cPs to 10⁵ cPs at 150°C the adhesive has a softening point of less than about 85°C.

15 19. The adhesive of claim 5 wherein the adhesive has a viscosity of 4300 cPs to 7300 cPs at 150°C and a and the adhesive has a softening point of less than about 95°C.

20. A disposable article comprising a film layer bonded to a non-woven layer using a hot melt construction adhesive, the construction adhesive comprising:
(a) greater than about 40 wt% of an ethylene/C₂ to C₁₀ α -olefin polymer
20 having a melt index greater than 900 gm-10 min⁻¹; and
(b) an effective amount of a hydrogenated hydrocarbon tackifying resin with a softening point greater than 120°C;
wherein the weight ratio of the polymer to the resin is greater than about 1:1.

25 21. The article of claim 20 wherein the adhesive has a softening point of less than about 95°C.

22. The composition of claim 20 wherein the weight ratio is greater than 1.5:1 the adhesive has a softening point of less than about 85°C.

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23. The composition of claim 20 wherein the weight ratio is greater than 1.8:1.

24. The adhesive of claim 20 wherein the ethylene/ α -olefin polymer comprises a blend of a first polymer having a melt index different than a second polymer.

25. The adhesive of claim 20 wherein the ethylene/ α -olefin polymer is present in the adhesive at a weight ratio polymer to resin of at least 2:1.

26. The adhesive of claim 20 wherein the ethylene/ α -olefin polymer is present in an amount of about 60 to 85 wt%.

27. The adhesive of claim 26 wherein the ethylene/ α -olefin polymer has a melt index greater than 950 gm-10 min⁻¹.

28. The adhesive of claim 26 wherein the resin is present in the adhesive in an amount of 20 to 40 wt%.

29. The adhesive of claim 20 wherein the ethylene vinyl acetate polymer comprises a blend of a first tackifier and a second tackifier wherein the first has a melting point 5 °C different than the second.

30. The adhesive of claim 20 wherein the adhesive consists essentially of 62 to 75 wt% of an ethylene/octene polymer having a melt index of about 850 to 1250 gm-10 min⁻¹ and about 25 to 50 wt% of a hydrogenated hydrocarbon tackifying resin with a softening point greater than about 125°C; wherein the weight ratio of the polymer to the resin is greater than about 1:1 and the adhesive has a softening point of less than about 95°C.

31. The adhesive of claim 20 wherein the adhesive has a viscosity of 4000 to 8000 cP at 150°C and the adhesive has a softening point less than 85°C.

32. The adhesive of claim 20 wherein the film comprises a polymer selected from a polyvinyl chloride, a polyolefin or mixtures thereof and the non-woven comprises a synthetic fiber.

33. A method of assembling a disposable article comprising the steps:

- (a) assembling a film with a non-woven sheet;
- (b) applying an effective amount of a hot melt construction adhesive to the non-woven sheet to bond the sheet to the film; wherein the construction adhesive comprises:
 - (i) greater than about 40 wt% of an ethylene/ α -olefin polymer having a melt index greater than 900; and
 - (ii) an effective amount of a hydrogenated hydrocarbon tackifying resin with a softening point greater than 120°C;

wherein the weight ratio of the polymer to the resin is greater than 1:1 and the adhesive has a softening point of less than about 95°C.

34. The composition of claim 33 wherein the weight ratio is greater than 1.5:1 the adhesive has a softening point of less than about 85°C.

35. The composition of claim 33 wherein the weight ratio is greater than 1.8:1.

36. The adhesive of claim 33 wherein the ethylene/ α -olefin polymer has an olefin monomer content of about 25 to 35 wt% and the polymer is present at a weight ratio polymer to resin of at least 2:1.

37. The adhesive of claim 33 wherein the ethylene/ α -olefin polymer is present in an amount of about 60 to 85 wt%.

38. The adhesive of claim 37 wherein the ethylene/ α -olefin polymer has a melt index greater than 900-1250 gm-10 min⁻¹.

5 39. The adhesive of claim 37 wherein the resin is present in the adhesive in an amount of 20 to 40 wt%.

40. The adhesive of claim 33 wherein the adhesive consists essentially of 62 to 80 wt% of an ethylene/octene polymer having a melt index of about 950 to 1250 gm-10 min⁻¹ and about 20 to 50 wt% of a hydrogenated hydrocarbon tackifying resin with a softening point greater than about 120°C; wherein the adhesive has a softening point of less than about 95°C.

41. The adhesive of claim 33 wherein the adhesive has a viscosity of 4000 to 8000 cP at 150°C and the adhesive has a softening point less than 85°C.

42. The adhesive of claim 33 wherein the film comprises a polymer selected from a polyvinyl chloride, a polyolefin or mixtures thereof and the non-woven comprises a synthetic fiber.

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43. A hot melt adhesive composition comprising:

(a) greater than about 40 wt% of an ethylene comonomer copolymer composition, the comonomer comprising vinyl acetate, an acrylic ester, a methacrylic ester or mixtures thereof, the polymer composition having a melt index greater than 1000; and

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(b) an effective amount of a hydrogenated hydrocarbon tackifying resin with a softening point greater than 120°C;

wherein the weight ratio of the polymer composition to the resin is greater than about 1:1.

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44. The composition of claim 43 wherein the tackifying resin has a softening point of less than about 125°C and the adhesive has a softening point of less than about 95°C.

5 45. The composition of claim 43 wherein the polymer composition comprises an ethylene-acrylic polymer.

46. The composition of claim 43 wherein ethylene acrylic polymer comprises an ethylene/methacrylate copolymer, an ethylene/n-butyl acrylate copolymer
10 or mixtures thereof.

47. A hot melt adhesive composition comprising:
(a) greater than about 40 wt% of an ethylene vinyl acetate polymer composition having a melt index greater than 1000 gm-10 min⁻¹; and
15 (b) an effective amount of a hydrogenated hydrocarbon tackifying resin with a softening point greater than 125°C;
wherein the weight ratio of the EVA polymer to the resin is greater than about 1:1.

48. The composition of claim 47 wherein the adhesive has a softening point
20 of less than about 95°C.

49. The composition of claim 47 wherein the polymer composition has a melt index greater than 2000 gm-10 min⁻¹ and the adhesive has a softening point of less than about 85°C.

25 50. The composition of claim 47 wherein the weight ratio is greater than 1.5:1.

51. The composition of claim 47 wherein the weight ratio is greater than
30 1.8:1.

52. The composition of claim 47 wherein the tackifying resin has a softening point of less than about 125°C.

53. The adhesive of claim 47 wherein the ethylene vinyl acetate polymer
5 composition comprises a first polymer having about 15 to 22 wt% vinyl acetate and a second polymer having about 23 to 28 wt% vinyl acetate, and the resin comprises about 20 to 40 wt% of the adhesive.

54. The adhesive of claim 47 wherein the ethylene vinyl acetate polymer has
10 a vinyl acetate content of about 25 to 35 wt% vinyl acetate and the ethylene vinyl acetate polymer is present in the adhesive at a weight ratio polymer to resin of at least 2:1.

55. The adhesive of claim 47 wherein the ethylene vinyl acetate copolymer
15 is present in an amount of at least about 60 wt%.

56. The adhesive of claim 55 wherein the ethylene vinyl acetate polymer has a melt index greater than 2700 gm-10 min⁻¹.

20 57. The adhesive of claim 55 wherein the resin is present in the adhesive in an amount of 20 to 40 wt%.

58. The adhesive of claim 47 wherein the ethylene vinyl acetate polymer comprises a blend of a first EVA and a second EVA wherein the first EVA has a MI
25 different than the second EVA.

59. The adhesive of claim 47 wherein the adhesive consists essentially of 42 to 85 wt% of an ethylene vinyl acetate polymer having a melt index of about 2650 to 3000 gm-10 min⁻¹ and about 30 to 50 wt% of a hydrogenated hydrocarbon tackifying
30 resin with a softening point greater than about 125°C; wherein the weight ratio of the

EVA polymer to the resin is greater than about 1:1 and the adhesive has a softening point of less than about 95°C.

5 60. The adhesive of claim 47 wherein the adhesive has a viscosity of 2000 cPs to 10^5 cPs at 150°C and the adhesive has a softening point less than 85°C.

 61. The adhesive of claim 47 wherein the adhesive has a viscosity of 4300 cPs to 7300 cPs at 150°C.

10 62. A disposable article comprising a film layer bonded to a non-woven layer using a hot melt construction adhesive, the construction adhesive comprising:
 (a) greater than about 40 wt% of an ethylene vinyl acetate polymer having a melt index greater than $1000 \text{ gm} \cdot 10 \text{ min}^{-1}$; and
 (b) an effective amount of a hydrogenated hydrocarbon tackifying resin
15 with a softening point greater than 120°C;
 wherein the weight ratio of the EVA polymer to the resin is greater than about 1:1.

 63. The article of claim 62 wherein the adhesive has a softening point of less than about 95°C.
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 64. The composition of claim 62 wherein the weight ratio is greater than 1.5:1 and the adhesive has a softening point less than the 85°C.

 65. The composition of claim 62 wherein the weight ratio is greater than
25 1.8:1.

 66. The adhesive of claim 62 wherein the ethylene vinyl acetate polymer comprises a blend of a first polymer having about 15 to 22 wt% vinyl acetate and a second polymer having about 23 to 30 wt% vinyl acetate.
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67. The adhesive of claim 62 wherein the ethylene vinyl acetate polymer has a vinyl acetate content of about 25 to 35 wt% vinyl acetate and the ethylene vinyl acetate polymer is present in the adhesive at a weight ratio polymer to resin of at least 2:1.

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68. The adhesive of claim 62 wherein the ethylene vinyl acetate copolymer is present in an amount of about 60 to 85 wt%.

69. The adhesive of claim 68 wherein the ethylene vinyl acetate polymer has a melt index greater than 2700 gm-10 min⁻¹.

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70. The adhesive of claim 68 wherein the resin is present in the adhesive in an amount of 20 to 40 wt%.

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71. The adhesive of claim 62 wherein the ethylene vinyl acetate polymer comprises a blend of a first EVA and a second EVA wherein the first EVA has a MI different than the second EVA.

72. The adhesive of claim 62 wherein the adhesive consists essentially of 62 to 75 wt% of an ethylene vinyl acetate polymer having a melt index of about 2500 to 3000 gm-10 min⁻¹ and about 25 to 50 wt% of a hydrogenated hydrocarbon tackifying resin with a softening point greater than about 125°C; wherein the weight ratio of the EVA polymer to the resin is greater than about 1:1 and the adhesive has a softening point of less than about 85°C.

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73. The adhesive of claim 62 wherein the adhesive has a viscosity of 4000 to 8000 cP at 150°C.

74. The adhesive of claim 62 wherein the film comprises a polymer selected from a polyvinyl chloride, a polyolefin or mixtures thereof and the non-woven comprises a synthetic fiber.

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75. The adhesive of claim 62 wherein the ethylene vinyl acetate polymer comprises a blend of a first EVA and a second EVA wherein the first EVA has a MI different than the second EVA.

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76. A method of assembling a disposable article comprising the steps:

- (a) assembling a film with a non-woven sheet;
- (b) applying an effective amount of a hot melt construction adhesive

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to the non-woven sheet to bond the sheet to the film; wherein the construction adhesive comprises:

- (i) greater than about 40 wt% of an ethylene vinyl acetate polymer having a melt index greater than 1500; and
- (ii) an effective amount of a hydrogenated hydrocarbon tackifying resin with a softening point greater than 120°C;

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wherein the weight ratio of the EVA polymer to the resin is greater than 1:1 and the adhesive has a softening point of less than about 85°C.

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77. The method of claim 76 wherein the weight ratio is greater than 1.5:1 and the adhesive has a softening point of less than about 95°C.

78. The method of claim 76 wherein the weight ratio is greater than 1.8:1.

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79. The method of claim 76 wherein the ethylene vinyl acetate polymer comprises a blend of a first polymer having about 15 to 22 wt% vinyl acetate and a second polymer having about 23 to 30 wt% vinyl acetate.

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80. The method of claim 76 wherein the ethylene vinyl acetate polymer has a vinyl acetate content of about 25 to 35 wt% vinyl acetate and the ethylene vinyl acetate polymer is present in the adhesive at a weight ratio polymer to resin of at least 2:1.

81. The method of claim 76 wherein the ethylene vinyl acetate copolymer is present in an amount of about 60 to 85 wt%.

82. The method of claim 81 wherein the ethylene vinyl acetate polymer has a
5 melt index greater than 2700 gm-10 min⁻¹.

83. The method of claim 81 wherein the resin is present in the adhesive in an amount of 20 to 40 wt%.

10 84. The method of claim 81 wherein the ethylene vinyl acetate polymer comprises a blend of a first EVA and a second EVA wherein the first EVA has a MI different than the second EVA.

85. The method of claim 76 wherein the adhesive consists essentially of 62
15 to 80 wt% of an ethylene vinyl acetate polymer having a melt index of about 2500 to 3000 gm-10 min⁻¹ and about 20 to 50 wt% of a hydrogenated hydrocarbon tackifying resin with a softening point greater than about 120°C; wherein the adhesive has a softening point of less than about 95°C.

20 86. The method of claim 76 wherein the adhesive has a viscosity of 4000 to 8000 cP at 150°C and the adhesive has a softening point of less than about 85°C.

87. The method of claim 76 wherein the film comprises a polymer selected from a polyvinyl chloride, a polyolefin or mixtures thereof and the non-woven
25 comprises a synthetic fiber.

88. A hot melt adhesive composition comprising:

- (a) greater than about 40 wt% of an ethylene/ C₃ to C₁₈ α-olefin
polymer composition having a melt index greater than 800 gm-10 min⁻¹; and
30 (b) about 0.1 to 10 wt% of an ABA block polymer composition having hydrogenated block copolymer;

(c) an effective amount of a hydrogenated hydrocarbon tackifying resin with a softening point greater than 125°C; wherein the weight ratio of the polymer composition to the resin is greater than about 1:1.

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89. The adhesive of claim 88 wherein the block polymer is a hydrogenated block polymer.

90. The composition of claim 88 wherein the adhesive has a softening point of less than about 95°C.

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91. The composition of claim 88 wherein the polymer composition has a melt index greater than 950 gm-10 min⁻¹ and the adhesive has a softening point of less than about 85°C.

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92. The composition of claim 88 wherein the weight ratio is greater than 1.5:1.

93. The composition of claim 88 wherein the weight ratio is greater than 1.8:1.

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94. The composition of claim 88 wherein the tackifying resin has a softening point of less than about 125°C.

95. The adhesive of claim 88 wherein the polymer composition comprises a polymer comprising a density of about 0.860 to 0.890 and the resin comprises about 20 to 40 wt% of the adhesive.

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96. The adhesive of claim 88 wherein polymer comprises a density of about 0.860 to 0.890 and the polymer is present in the adhesive at a weight ratio polymer to resin of at least 2:1.

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97. The adhesive of claim 88 wherein the ethylene/ α -olefin polymer is present in an amount of at least about 60 wt.-%.
- 5 98. The adhesive of claim 97 wherein the ethylene/ α -olefin polymer has a melt index greater than 950 gm-10 min⁻¹.
99. The adhesive of claim 97 wherein the resin is present in the adhesive in an amount of 20 to 40 wt%.
- 10 100. The adhesive of claim 88 wherein the ethylene/ α -olefin polymer comprises a blend of a first ethylene/ α -olefin polymer and a second ethylene/ α -olefin polymer wherein the first has a MI different than the second.
- 15 101. The adhesive of claim 88 wherein the adhesive consists essentially of 37 to 80 wt% of an ethylene/octene polymer having a melt index of about 850 to 1250 gm-10 min⁻¹, about 3 to 6 wt% of the ABA block polymer and about 30 to 50 wt% of a hydrogenated hydrocarbon tackifying resin with a softening point greater than about 125°C; wherein the weight ratio of the polymer to the resin is greater than about 1:1 and
- 20 the adhesive has a softening point of less than about 95°C.
102. The adhesive of claim 88 wherein the adhesive has a viscosity of 2000 cPs to 10⁵ cPs at 150°C.
- 25 103. The adhesive of claim 88 wherein the adhesive has a viscosity of 4300 cPs to 7300 cPs at 150°C.